Earth-Friendly Gardening & Landscaping

The GreenMan

Putting Your Soil to the Test

Healthy soil is the single most important ingredient for successful lawns, yards, and gardens. Unfortunately, it is the one element generally overlooked by homeowners as they head into their neighborhood garden center, hell-bent on beating some pest or jazzing up the green in their grass.

The simple fact is that healthy soil produces healthy plants. Period. Anything done to improve the yard or garden which does not consider the needs of the soil is a waste of time — and potentially damaging both to the soil and to the community of plants it supports.

For the most part, healthy plants do not attract pests and are seldom bothered by the more common plant diseases. Pests are rather an indicator that a plant is suffering environmental stress, whether nutrient deficiencies and unsuitable soil pH, which are also reflected in poor color or discoloration of leaves or disappointing blooming, or other problems impacting root health, and therefore plant health and vigor, such as lack of moisture retention, poor drainage, poor soil aeration, and related factors. Addressing symptoms like insect predation does not solve the real problem, which is the quality of the soil: its structure, pH, organic content, and mineral composition. It is better to correct the problem at its source — curing "sick" soil — rather than focussing on pesticide band-aids for undesirable symptoms.

The Root of the Problem

Soil is a complex combination of minerals, organic matter, water, air, and a dynamic ecosystem of microorganisms, worms, and other valuable critters (see our factsheet on "The Secret Life of Soil"). Through chemical and, especially, biological action, soil provides a sustainable supply of nutrients, moisture, and gases which plants need to grow and thrive. Plants and soil get along just fine together — the problem seems to be people getting mixed up in the process.

Removing grass clippings and hauling away autumn leaves is akin to strip-mining the earth. And spraying or spreading synthetic chemicals such as fertilizers and pesticides on a lawn or garden can kill, drive off, or otherwise disrupt the beneficial organisms which naturally keep soils healthy and fertile. Over time, this abuse can lead to an accumulation of toxic salts in the soil, impoverished nutrient levels, acidity, and compaction. The gardener has killed the soil with kindness, resulting in a virtual green desert which will need continued, costly, and artificial support, not unlike a hydroponic system. None of which is the desired result, either for the individual — or the environment.

The first, best step to turn conditions around is to learn more about the soil in your yard or garden, discover what your

soil really needs to support your lawn and plantings, and establish a simple program to ensure long-term soil health.

Soil Testing

"Thinking" that your lawn needs various additives and amendments is a dangerous way to proceed. There is very little benefit to be had from lugging home heavy, dusty bags of lime or fertilizer without first taking the time to assess the actual condition of your soil.

In some cases there are visual indicators that your soil is in trouble. For example, large patches of moss in a lawn usually signal acidic (low pH) conditions and poor drainage. Some weeds, especially plantain, are most often found in lawns with heavy, compacted soils, and can also indicate acidic and/or waterlogged conditions. But, again, these and other weeds are only symptoms, and even though they may indicate a low-lime or acid soil, it is more important to conduct a thorough test to determine the correct application rates for lime and other amendments.

Moreover, while there are numerous ways to perform some "home tests" yourself, including a variety of pH test kits, remember that soil pH is only a part of the soil equation. It is almost certainly better to have the testing done professionally, especially by someone who can help interpret the results and direct a remedial course of action. In addition, it is preferable to have a test that covers a range of soil conditions, probably more parameters than any homeowner would care to undertake using $45 electronic pH meters or shaking jars full of soil samples and water to determine soil texture.

You will find that most local garden centers and nurseries provide soil test services, usually for fees in the neighborhood of 20 dollars and up. In addition, many Cooperative Extension Service Soil Test Laboratories will provide mail-order test kits and instructions to homeowners, even to those in neighboring states. Unfortunately, due to budget constraints, the University of Maryland suspended soil testing in mid-2003. However, the Montgomery County Department of Environmental Protection (DEP) has made arrangements to provide test kits packages from the Virginia Tech Soil Test Laboratory through the Arlington County Cooperative Extension Service. DEP will mail test kits to residents, who should follow the enclosed directions and return the soil sample to the address provided, along with the testing fee of approximately ten dollars (seven for Virginia residents).

Regarding the soil test, there are several things to keep in mind, including the fact that you will need to take samples from at least several areas on your property, and you may need to have several tests run, one for each type of soil use: a test for the lawn, a test for planting beds, and perhaps a separate test for a vegetable garden. For example, when testing the soil for your lawn, you will want to determine an "average" for the overall lawn area: follow the instructions on the kit carefully, cleaning away any organic matter (grass clippings, fallen leaves, etc.), and take at least half a dozen to one dozen samples from different locations. Mix the samples together completely, and send a representative sample off to be tested.

If conditions vary dramatically from the front yard to the back, due to exposure, soil type, grading variants, and so forth, you may want to have two tests done, as different care may be required for each area. Use the same protocol for samples from other planting areas. Remember that the soil in a vegetable garden is going to be significantly different from that in a lawn, especially over a period of time, with each respective area having unique needs regarding nutrients, pH, and organic amendments.

The test results will provide solid, scientific, and reliable guidance for improving your soil. A follow-up call to your local Cooperative Extension Service office (in Montgomery County call 301.590.9638) or to the Maryland Home and Garden Information Center at 800.342.2507, will also help you develop a basic management program for your yard and garden, either through a personal consultation or through a host of useful publications and pre-recorded gardening tips.

Finally, keep in mind that the testing process is only a snapshot of your soil environment, and recommended amendments are designed to deal with soil conditions at that period of time. Your soil will change from season to season, and from year to year. The best advice is to plan on having your soil tested on a regular basis for the first couple of years, especially if you have never had it tested before, or if your soil test results indicate severe problems. Also, if you are only starting to implement an organic program to undo the ravages of years of chemical applications, it will take a while for the soil ecology — and, therefore, basic health of the soil — to recover. After several years of regular testing, you can then reduce your testing frequency to once every couple of years.

Is it worth it? The modest ten to fifteen dollar annual investment in testing will result in healthy soil — and a sustainable healthy lawn and garden. That should prove worthwhile it itself. Also, you may actually save a significant amount of money traditionally squandered on unnecessary fertilizers and pesticides, with savings that are meaningful both for your wallet and for your environment. Soil health means plant health -- which translates into an environment spared the all-too-common abuses of nutrient runoff, groundwater contamination, poisoned streams, and toxic threats to people and wildlife.

The GreenMan Show is produced for County Cable Montgomery by the Department of Environmental Protection (DEP) and the Office of Public Information. It airs daily on Cable Channel 6 and can also be viewed on the Internet. For a complete schedule and online access, visit **greenmanshow.com.**

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